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10/667,395

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EXAMINER

ALAVI, AMIR

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/667,395	Applicant(s) PARK ET AL.	
	Examiner Amir Alavi	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 103

- The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choi (USPAP 2002/0118754 A1) in view of Rackett (USPN 6,567,469 B1).

Regarding claim 1, Choi discloses: a motion estimation unit which detects an optimal sum of absolute differences (SAD) for a current motion estimated block when a motion is estimated by using a current frame data and a previous frame data (Please note, figure 3 in correlation to page 2, first column, lines 9-13. As indicated the SAD value is an absolute value of the difference between the pixel of the present frame and

that of the previous frame, which value means a difference component value between the present frame and the previous frames accumulated by blocks), a system control unit which outputs a predetermined threshold related to the optimal sum of absolute differences and a comparator which compares the optimal SAD output from the motion estimation unit with the predetermined threshold output from the system control unit and outputs information indicating the coding mode for the current motion estimated block (Please note, figures 3 and 4 in correlation to second page, first column, lines 43-49. As indicated with all the block-based SAD values of the one-frame data received, the SAD examiner 306 determines in step 406 whether the individual SAD values of the one-frame data exceed the predetermined SAD threshold. The SAD threshold refers to a reference value of the SAD of input frame data to select a coding mode for coding the input frame data more efficiently).

Choi does not expressly disclose, wherein the optimal SAD is the smallest SAD among SADs detected by a motion estimated block.

Rackett discloses, wherein the optimal SAD is the smallest SAD among SADs detected by a motion estimated block (please note, column 3, lines 8-33. As indicated during a given motion estimation search sequence, the candidate macroblock in the anchor picture that yields the smallest SAD value is selected as the "best match". The horizontal and vertical position of this macroblock relative to the current macroblock or a derivative thereof is specified as the motion vector for the current macroblock).

Choi & Rackett are combinable because they are from the same field of endeavor.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to utilize this smallest SAD among SADs of Rackett in Choi's invention.

The suggestion/motivation for doing so would have been as explained by Rackett, column 3, lines 25-27, As disclosed if the SAD value is larger than a predetermined threshold value, it is determined that a suitable match does not exist for the current macroblock.

Therefore, it would have been obvious to combine Rackett with Choi to obtain the invention as specified in claim 1.

Regarding claim 2, Choi discloses, wherein the information indicating the coding mode for the current motion estimated block is expressed by using one bit data (Please note, figures 3 and 4 in correlation to second page, first column, line 45. As indicated the individual SAD values of the one-frame data).

Regarding claim 3, arguments analogous to those presented for claim 1, are applicable.

Regarding claim 4, Choi discloses, wherein the information indicating the coding mode for each of the plurality of motion estimated blocks is expressed by one bits data which can be read for a frame by the system control unit (Please note, figures 3 and 4 in correlation to second page, first column, lines 45-49. As indicated the SAD

threshold refers to a reference value of the SAD of input frame data to select a coding mode for coding the input frame data more efficiently).

Regarding claim 5, Choi discloses, wherein one bit data of the information indicating the coding mode stored in the memory is assigned to each motion estimated block (Please note, figures 3 and 4 in correlation to second page, first column, lines 45-49. As indicated the SAD threshold refers to a reference value of the SAD of input frame data to select a coding mode for coding the input frame data more efficiently).

Regarding claim 6, Choi discloses, wherein the information indicating the coding mode determines whether the coding mode of each motion estimated block is an intra coding mode or an inter coding mode (Please note, figures 3 and 4, in correlation to second page, first column, lines 16-22. As indicated comparing the SAD value of the input frame data with a predetermined SAD threshold and applying coding selection information "S" to a coding controller 302. The coding controller 302 determines, based on the coding selection information "S", whether to code the input frame in the intra-coding mode or in the inter-coding mode).

Regarding claim 7, arguments analogous to those presented for claim 1, are applicable.

Regarding claim 8, Choi discloses, wherein the predetermined threshold is set when a motion estimation is initialized (Please note, figures 3 and 4).

Regarding claim 9, Choi discloses, wherein the predetermined threshold is updated by a frame by the system control unit (Please note, figures 3 and 4).

Regarding claim 10, Choi discloses, wherein the predetermined threshold is updated by the system control unit when a bit rate of an image is changed (Please note, figures 3 and 4).

Regarding claim 11, arguments analogous to those presented for claim 1, are applicable.

Regarding claim 12, Choi discloses, wherein coding the current motion estimated block with reference to the coding mode information (Please note, figures 3 and 4 in correlation to second page, first column, lines 45-49. As indicated the SAD threshold refers to a reference value of the SAD of input frame data to select a coding mode for coding the input frame data more efficiently).

Regarding claim 13, arguments analogous to those presented for claim 6, are applicable.

Regarding claim 14, arguments analogous to those presented for claim 2, are applicable.

Regarding claim 15, arguments analogous to those presented for claim 6, are applicable.

Regarding claim 16, arguments analogous to those presented for claim 2, are applicable.

Regarding claim 17, arguments analogous to those presented for claim 12, are applicable.

Conclusion

- Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
- A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

- Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amir Alavi whose telephone number is 571-272-7386. The examiner can normally be reached on Mon-Thu.. 8:00 am thru 6:30pm.
- If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eileen D. Lillis can be reached on 571-272-6928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
- Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

Art Unit: 2624

- Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AA

Technology Division 2624

16 October 2007

AMIR ALAVI
PRIMARY PATENT EXAMINER
Amir Alavi